

REMARKS

A. Status of the Application

Claims 1–28 are pending in the application. None of the claims have been withdrawn.

B. Information Disclosure Statement

The information disclosure statement filed January 22, 2001, failed to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP §609 because reference 1003022A3 and 2-595-940 did not have English translations, and therefore, were not considered. Applicants include with this response a copy of a Supplemental Information Disclosure Statement, which includes a copy of the search report from the international application. The search report provides an indication of the references, and therefore satisfies the requirement for a translation.

C. Drawings

The drawings were objected to because the box elements 80, 82 and 84 in Figure 8 need to be labeled in accordance with 37 CFR 1.83(a). In addition, the reference character (a) was used to designate both Fig. 7(a) and Fig. 7(b). Proposed drawing corrections are being submitted with this response for both Figures, including a copy of a separate letter to the draftsman. No new matter is being submitted with these corrections.

D. Objections to the Specification

The specification was objected to for the following reasons:

The application as filed did not contain an abstract. Applicants have now amended the specification to include an abstract. The title has likewise been amended to clearly indicate the invention to which the claims are directed.

The disclosure was objected to for several minor typographical errors and has been amended appropriately.

E. Rejection of the Claims Under 35 U.S.C. §112

Claims 2, 5, 9, 15–18 and 21–22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant amended the claims as appropriate, and in view of these amendments, respectfully submits that the rejection under §112 is overcome. No new matter is being submitted with these amendments.

F. Rejection of the Claims Under 35 U.S.C. §102

Claims 1–9 and 21–8 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,097,326 to Meijer. In order for a reference to act as a §102 bar to patentability, the reference must teach each and every element of the claimed invention. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771 (Fed. Cir. 1983). Without the required teaching of “each and every element” as set forth in the claims, it is improper to continue such rejections under §102(b). Meijer does not teach each and every element of the claimed invention, and thus fails as an anticipatory reference.

Meijer discloses a system for converting visual images into acoustical representations. Images are transformed into electronic signals by an image sensing unit, which converts images into electronic signals (col. 4, lines 35–39). An image processing unit converts analog electronic images into digital signals, which are stored in digital memory, after which digital data processing and waveform synthesis in a data processing and waveform synthesis unit yields a digitized waveform, which is finally converted into analog electronic signals in a D/A conversion and analog output stage for a sound generating output unit (col. 4, lines 40–50). Meijer discloses that a video camera is used as the input source (col. 7, lines 13–14). The images are stored as lines of pixels having various brightness values (col. 7, lines 25–27). Image to sound conversion

results from the pixels exciting an associated digital harmonic oscillator. The greater the brightness of the pixel, the larger the amplitude of its oscillator signal (col. 7, lines 34-39). The oscillator signals are summed to obtain a total signal with Fourier components, after which the signal is sent to a DA converter and output through headphones (col. 7, lines 39-42). Meijer states that the human hearing system is capable of decomposing a complicated signal into its Fourier components (music, speech), which is what is needed to interpret the vertical positions of the pixels. (col. 7, lines 58-61).

Applicants disclose a system for translating visual images into sound. Specifically, Applicants incorporate a system for feature extraction that is designed to enable a blind subject to selectively deconstruct a complex optical image into a set of simpler representations. Each representation selectively isolates one or more features in the visual display that is then translated into an equivalent sound pattern. The present invention is based on the discovery that musical forms can be used to convey precise visual information to a subject. Applicants specifically encode spatial information relating to a feature or features contained within an image into a form of one or more polyphonic musical sequences. Polyphonic musical sequences provide a more natural and realistic sound for melodies instead of just tones.

The Examiner alleges that Meijer discloses enabling a person to visualize images comprising the steps of encoding spatial information relating to a feature or features contained with an image into the form of one or more musical sequences, as described by Applicants. It is alleged that Meijer discloses the signal being a music or a speech, referring to column 7, lines 58-60. However, in this section, Meijer is referring to the fact that it is a known principal that the human hearing system is capable of decomposing a complicated signal into its Fourier components (music, speech). What Meijer draws from this knowledge is that in the context of

visualizing images through sound, the signal representing the image can be composed of Fourier components. Notably, however, Meijer does **not** disclose that the Fourier components can take the form of musical sequences. This fact is clear from the remainder of the disclosure of Meijer, where non-musical waveform, not polyphonic musical sequences, are disclosed. Thus, Meijer does not teach or suggest the encoding of spatial information into the form of one or more polyphonic musical sequences, as in Applicants' amended claims. The system of Applicants' invention is not the same as the system of Meijer, and because Meijer does not teach each and every element of Applicants' invention, Applicants' claims are not anticipated by Meijer.

Additionally, Applicants specifically disclose and claim encoding spatial information into the form of one or more polyphonic musical sequences. An advantage of Applicants' invention and its use of polyphonic musical sequences is improved comprehensibility by the users and an ability to convey complex information in a way that can be deconvoluted back to shape or form by users. Meijer does not suggest that polyphonic musical sequences may be utilized, nor the specific advantages of using such sequences, as taught and claimed by Applicants.

Meijer does not expressly or inherently disclose, suggest or teach each and every element of the claims, and thus, it fails as an anticipatory reference. Applicant respectfully requests that the rejection under §102(b) be withdrawn with respect to claim 1. Further, because claims 2–19 and 21–28 ultimately depend from claim 1, and incorporate its limitations, these claims should likewise be found not anticipated by Meijer. Applicant respectfully requests that the rejection under §102(b) be withdrawn with respect to these claims.

G. Rejection of the Claims Under 35 U.S.C. §103

Claim 20 was rejected under 35 U.S.C. §103 as being unpatentable over Meijer in view of U.S. Patent No. 4,378,569 to Dallas, Jr. et al. Applicants' invention is not obvious in view of Meijer in combination with Dallas, Jr. et al.

The invention of Meijer, the primary reference, was described in detail in the previous arguments, and as discussed, there is a significant difference in Applicant's invention from that described in Meijer. The addition of Dallas, Jr. does not overcome the deficiencies of the primary reference to render Applicant's invention obvious. Further, as claim 20 ultimately depends from claim 1, which is not anticipated or obvious in view of Meijer, the addition of Dallas, Jr. et al, does not now render this dependent claim obvious. Thus, Applicants respectfully request that the rejection of claims 20 under §103 be withdrawn.

CONCLUSION

In view of the amendments and arguments presented above, Applicant respectfully submits that Claims 1-28 are now in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

Date: February 2, 2004

CERTIFICATE OF MAILING

I hereby certify that this correspondence is, on the date shown below, being deposited with the United States Postal Service with first class postage prepaid in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 2, 2004.

Robert Holland
Robert Holland

By: Monique A. Morneault
Monique A. Morneault, Reg. No. 37,893
Wallenstein Wagner & Rockey, Ltd.
311 South Wacker Drive, 53rd Floor
Chicago, Illinois 60606-6630
(312) 554-3300
Attorneys for Applicant